

**UNIVERSITY COAL RESEARCH/
HISTORICALLY BLACK COLLEGES AND UNIVERSITIES AND OTHER MINORITY INSTITUTIONS
CONTRACTORS REVIEW CONFERENCE**

AGENDA

Tuesday, June 5, 2001

Session A - Opening Session

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| 8:00 - 9:00 a.m. | Keynote Speaker: Arthur L. Baldwin, Regional Manager
National Energy Technology Laboratory |
| 9:00 - 9:35 a.m. | Development of Mesoporous Membrane Materials for CO ₂ Separation
Wei-Heng Shih, Drexel University |
| 9:35 - 10:10 a.m. | High Temperature Carbon Dioxide Semi-permeable Dense Ceramic Membrane
Y.S. Lin, University of Cincinnati |
| 10:10 - 10:45 a.m. | Water Gas Shift Kinetics at Membrane Reactor Conditions
Carl Lund, SUNY-Buffalo |
| 10:45 - 11:00 a.m. | Break |
| 11:00 - 11:35 a.m. | Separation of Hydrogen and Carbon Dioxide Using a Novel Membrane Reactor
in Advanced Fossil Energy Conversion Processes
Shamsuddin Ilias, North Carolina A&T State University |
| 11:35 - 12:10 p.m. | Oxygen-Enriched Coal Combustion with Carbon Dioxide
John M. Veranth, University of Utah |
| 12:10 - 1:25 p.m. | Lunch (on your own) |
| 1:25 - 2:00 p.m. | Minimizing Net CO ₂ Emissions by Oxidative Co-Pyrolysis Blends
Robert Hurt, Brown University |
| 2:00 - 2:35 p.m. | Separation of CO ₂ from Flue Gases by Carbon-Multiwall Carbon Nanotube
Membranes
Rodney Andrews, University of Kentucky |
| 2:35 - 3:10 p.m. | Palladium/Copper Alloy Composite Membranes for High Temperature Hydrogen
Separation from Coal-Derived Gas Streams
Robert McCormick, Colorado School of Mines |
| 3:10 - 5:00 p.m. | Poster Session |

Tuesday, June 5, 2001

Session B - Opening Session

- 8:00 - 9:00 a.m. Keynote Speaker: **Arthur L. Baldwin, Regional Manager
National Energy Technology Laboratory**
- 9:00 - 9:35 a.m. Engineering a New Material for Hot Gas Cleanup
Thomas Wheelock, Iowa State University
- 9:35 - 10:10 a.m. Control of Interfacial Dust Cake to Improve Efficiency of Moving Bed Granular
Filters
Robert Brown, Iowa State University
- 10:10 - 10:45 a.m. Electrostatically Enhanced Barrier Filter Collection
John Erjavec, University of North Dakota
- 10:45 - 11:00 a.m. **Break**
- 11:00 - 11:35 a.m. High Temperature Removal of H₂S from Coal Gasification Process Streams Using
an Electro-chemical Membrane System
Jack Winnick, Georgia Institute of Technology
- 11:35 - 12:10 p.m. Design of Hybrid Bottoming Power Cycles Employing Ammonia-Carbon
Dioxide-Water Mixtures
Ashish Gupta, State University of New York at Buffalo
- 12:10 - 1:25 p.m. **Lunch (on your own)**
- 1:25 - 2:00 p.m. Study of Activation of Coal Chars
Eric Suuberg, Brown University
- 2:00 - 2:35 p.m. Development of Activated Carbons from Coal Combustion By-Products
Harold Schobert, Pennsylvania State University
- 2:35 - 3:10 p.m. Experimental and Theoretical Determination of Heavy Oil Viscosity Under
Reservoir Conditions
Jorge Gabitto, Prairie View A&M University
- 3:10 - 5:00 p.m. **Poster Session**

Wednesday, June 6, 2001

Session A

- 8:30 - 9:05 a.m. Improved Catalysts for Selective Catalytic Reduction of Nitrogen Oxides with Hydrocarbon
Ates Akyurtlu, Hampton University
- 9:05 - 9:40 a.m. Contribution of Semi-Volatile Organic Material to PM_{2.5}
Delbert Eatough, Brigham Young University
- 9:40 - 10:15 a.m. Sampling, Analysis, and Properties of Primary PM_{2.5} : Application to Coal-Fired Utility Boilers
Allen Robinson, Carnegie Mellon University
- 10:15 a.m. **Adjourn**

Session B

- 8:30 - 9:05 a.m. An Innovative Concept for CO₂-Based Tri-Generation of Fuels, Chemicals, and Electricity Using Flue Gas in Vision 21-Plant
Jian Zheng, Pennsylvania State University
- 9:05 - 9:40 a.m. Advanced Diagnostics Techniques for Three-Phase Slurry Bubble Column Reactors
Muthanna H. Al-Dahhan, Washington University
- 9:40 - 10:15 a.m. Development of Attrition-Resistant Iron-Based Fischer-Tropsch Catalysts
K. Jothimurugesan, Hampton University
- 10:15 a.m. **Adjourn**

POSTER PRESENTATIONS OF PROJECT ACCOMPLISHMENTS

Effect of Fly Ash on Mercury Oxidation During Post Combustion Conditions

Robert C. Brown, Iowa State University

Catalysts for High Cetane Ethers as Diesel Fuels

Kamil Klier, Lehigh University

Novel Slurry Phase Diesel Catalysts for Coal-Derived Syngas

Abhaya Datye, University of New Mexico

Air Separation by Pressure Swing Adsorption Using Superior Adsorbent

Ralph T. Yang, University of Michigan

Supported Dense Ceramic Membranes for Oxygen Separation

Timothy L. Ward, University of New Mexico

CO₂, Separation Using Zeolite Membranes

Richard Noble, University of Colorado

Atomic-Level Imaging of CO₂ Disposal as a Carbonate Mineral; Optimizing Reaction Process Design

Michael J. McKelvy, Arizona State University

Computational and Experimental Modeling of Three-Phase Slurry Bubble Column Reactors

Dimitri Gidaspow, Illinois Institute of Technology

Development of Novel Electrocatalysts for Proton Exchange Membrane Fuel Cells

Shamsuddin Ilias, North Carolina A&T University

Transport and Phase Equilibria Properties for Steam Flooding Heavy Oils

Jorge Gabitto, Prairie View A&M University

Experimental and Theoretical Investigations of New Power Cycles and Advanced Falling Film Heat Exchangers

Arsalan Razani and Kwang J. Kim, University of New Mexico

Kinetics of Hotgas Desulfurization Sorbents for Transport Reactors

Kyung C. Kwon, Tuskegee University

POSTER PRESENTATIONS OF PROPOSALS

A New Class of Mesoporous Catalysts for Applications in Petroleum Refining
Conrad Ingram, Clark Atlanta University

Integrating P-Wave and S-Wave Seismic Data to Improve Characterization of Oil Reservoirs
Innocent Aluka, Prairie View A&M University

Flux Enhancement in Crossflow Membrane Filtration: Fouling and Its Minimization by Flow Reversal
Shamsuddin Ilias, North Carolina A&T State University

Novel Preparation and Magneto Chemical Characterization of Nano-Particle Mixed Alcohol Catalysts
Zhenchen Zhong, Grambling State University

Synthesis of Sulfur Based Water Treatment Agent from SO₂ Waste
Robert C. Brown, Iowa State University

High Efficiency Desulfurization of Synthesis Gas
Douglas Harrison, Louisiana State University

A Novel Integrated Stack Approach for Realizing Mechanically Robust Solid Oxide Fuel Cells
Scott A. Barnett, Northwestern University

Fundamental Investigation of Fuel Transformations in Advanced Coal Combustion and Gasification Technologies
Robert Hurt, Brown University

Coal Particle Flow Patterns for O₂ Enriched, Low NO_x Burners
Jennifer L. Sinclair, Purdue University

Ceramic Membranes for Hydrogen Production from Coal
George R. Gavalas, California Institute of Technology

Proton-Conducting Dense Ceramic Membranes for Hydrogen Separation Membranes Applications
Y.S. Lin, University of Cincinnati

Water-Gas Shift Hydrogen Separation Process
Maria Flytzani-Stephanopoulos, Tufts University

Sulfur Reduction in Gasoline and Diesel Fuels by Extraction/Adsorption of Refractory Dibenzothiophenes
Robert J. Angelici, Iowa State University

Deep Desulfurization of Diesel Fuels by a Novel Integrated Approach
C. Song, Pennsylvania State University

Improved Iron Catalysts for Slurry Phase Fischer-Tropsch Synthesis
Dragomir B. Bukur, Texas A&M University

Variables, Kinetics and Mechanisms of Heterogeneous Reburning
Wei-Yin Chen, University of Mississippi

Control of Pollutant Emissions in Natural Gas Diffusion
Ala R. Qubbaj, The University of Texas Pan American